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(21) International Application Number: PCT/GB99/03215 (22) International Filing Date: 13 October 1999 (13.10.99) (30) Priority Data: 2,251,065 20 October 1998 (20.10.98) CA 9917164.7 22 July 1999 (22.07.99) GB (71)(72) Applicant and Inventor: WELLS, Michael, Andrew [GB/GB]; Maple House, Main Street, Cosgrove, Milton Keynes MK19 7DL (GB). (74) Agent: RAYNOR, Simon, Mark; Urquhart-Dykes & Lord, Midsummer House, 411C Midsummer Boulevard, Central Milton Keynes, Bucks MK9 3BN (GB).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: A DISPENSER FOR DISPENSING FROZEN DESSERT FROM PRE-FILLED CONTAINERS, AND A DISPENSING SYSTEM INCLUDING A DISPENSER AND A PLURALITY OF CONTAINERS (57) Abstract <p>A dispensing device for dispensing frozen dessert from pre-filled containers of frozen dessert. Each container (2) includes a tubular housing (3) having a nozzle at a first end (4) and a piston (9) located for sliding movement within the tubular housing to extrude the frozen dessert within the container through the nozzle. The dispensing device includes a frame member (16), a support means (18) for supporting a pre-filled container in position for dispensing the frozen dessert, a plunger (22) for engaging the piston (9) of a container supported on the support means (18), and a drive lever (20) for driving the plunger to dispense frozen dessert from the container. The support means (18) is attached to the frame member (16) by a first pivot means (38). The plunger (22) is attached to the drive lever (20) by a second pivot means (60). The drive lever (20) is attached to the frame member by a third pivot means (44). This arrangement is such that the dispensing device may be unfolded for use or folded substantially flat for storage.</p>		

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**A DISPENSER FOR DISPENSING FROZEN DESSERT FROM PRE-FILLED
CONTAINERS, AND A DISPENSING SYSTEM INCLUDING A DISPENSER
AND A PLURALITY OF CONTAINERS.**

The present invention relates to a dispenser for dispensing frozen dessert from pre-filled
5 containers into for example a serving dish or wafer cornet. Furthermore the present
invention relates to a dispensing system for dispensing frozen desserts, including a dispenser
and a plurality of containers, each containing an individual portion of the frozen dessert.
In particular, but not exclusively, the invention relates to an ice-cream dispensing system
for use in the home or in shops or other establishments that dispense ice-creams.

10 Individual portions of ice-cream may be dispensed from tubs using scoops. This method
of dispensing ice-cream is slow and time consuming, and there is no control of size of the
individual portions. Unless the ice-cream is allowed to soften first, the ice-cream in tubs
is often hard, resulting in it being difficult to scoop out of the tub. When the hard ice-cream
is then forced into a wafer cone, the cone may break: alternatively, if the ice-cream is not
15 firmly secured within the cone, it may fall out.

Uniform individual portions of ice-cream may also be dispensed using an ice-cream
dispenser, for example as described in WO94/13154. However, these ice-cream dispensers
are expensive, large and bulky. They cannot easily be stored and often cannot be manually
operated.

20 It is an object of the present invention to provide a dispenser for dispensing frozen desserts
from pre-filled containers, and a dispensing system including a dispenser and a plurality of
containers pre-filled with frozen dessert that mitigates at least some of the above
mentioned problems.

According to the present invention there is provided a dispensing device for dispensing
25 frozen dessert from pre-filled containers of frozen dessert, each said container including a
tubular housing having a nozzle at a first end thereof and a piston located for sliding
movement within said tubular housing to extrude frozen dessert within said container
through the nozzle, the dispensing device including a frame member, a support means for
supporting a pre-filled container in position for dispensing the frozen dessert, said support

means being attached to said frame member by a first pivot means, a plunger for engaging the piston of a container supported on said support means, and a drive lever for driving said plunger to dispense frozen dessert from the container, said plunger being attached to said drive lever by a second pivot means, said drive lever being attached to said frame member
5 by a third pivot means, the arrangement being such that the dispensing device may be unfolded for use or folded substantially flat for storage.

The dispensing device is small, compact and easy to use, allowing individual portions of frozen dessert to be dispensed easily and attractively into either a cornet or a bowl. The dispensing device can be folded flat so that when it is not in use it can be easily stowed
10 away, for example in a drawer.

Preferably, the support member is arranged to fold into an aperture in the frame member, and includes an arcuate support surface to engage the first end of the container.

Preferably, the drive lever is arranged to fold substantially flat against the frame member. Advantageously, the plunger is arranged to fold into an aperture in the drive lever.

15 Advantageously, the drive lever has two parts pivoted together, the arrangement being such that the drive lever may be unfolded for use or folded substantially flat for storage.

Advantageously, the frame member includes mounting means for mounting the device to a support.

The present invention further provides for a frozen dessert dispensing system, said
20 dispensing system including a dispensing device as described in the preceding paragraphs and a plurality of containers, each container containing an individual portion of frozen dessert, said container including a substantially cylindrical tube having first and second ends, a nozzle means towards said first end, a piston means located between said nozzle and said second end, said piston means being adapted for sliding movement along the tube between
25 said nozzle means and said nozzle means.

The dispensing system is small, compact and easy to use, allowing individual portions of frozen dessert to be dispensed easily and attractively into either a cornet or a bowl. This system provides for a choice of flavours, quantity control of portion size, improved hygiene.

Advantageously, the individual portion of frozen dessert lies in the range 100ml-250ml, and preferably in the range 125ml-200ml.

Advantageously, the container is sealed with a removable cover. Preferably, the container is substantially rigid, and made of high density polyethylene or polypropylene.

- 5 The present invention further provides for a method of dispensing frozen dessert from a container containing an individual portion of frozen dessert using a dispensing device as described in the preceding paragraphs, said container including a substantially cylindrical tube having first and second ends, a nozzle means towards said first end, a piston means located between said nozzle and said second end, said piston means being adapted for
10 sliding movement along the tube, said individual portion of frozen dessert being contained within the cylindrical tube between said nozzle means and said piston means, the method including unfolding the dispensing device for use, placing a container of frozen dessert on said support means, placing the plunger in engagement in engagement with the piston of the container, and operating said drive lever to actuate said plunger, such that it drives said
15 piston along the tube, and dispenses the frozen dessert through said nozzle into a serving container.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings of which:

Figure 1 is a front view of the folded dispenser;

- 20 Figure 2 is a rear view of the folded dispenser;

Figure 3 is a side view of the folded dispenser;

Figure 4 is a perspective view of the dispenser as it is unfolded;

Figure 5 is a side view, in cross-section of the dispenser in the operating position, with a container in position;

- 25 Figure 6 is a perspective view of a container.

The dispensing system includes a dispenser 1, shown in figures 1 to 5, and a plurality of containers 2, shown in figures 4 to 6.

Each container 2 consists of a cylindrical tube 3 with first end 4 and second end 5.

A conical nozzle 6 partially closes the first end 4 of the cylindrical tube 3. The tube extends beyond the nozzle and has an end face 7 for engaging a support. The nozzle 6 includes a star-shaped aperture 8. This produces an attractive decorative pattern on the surface of the ice-cream as it is extruded through the nozzle 6, and allows the extruded ice-cream to flex so that it may be served easily in either dishes or cornets.

As shown in figure 5, a piston 9 is located within the main body of the tube 1, between the nozzle 6 and the second end 5. The piston has a cylindrical wall 10 and a front face 12 which is substantially conical in shape. The piston includes a ring 14 on the rear surface of the front face. To clean the tube thoroughly, a lip may be provided on the circumferential surface of the piston (not shown).

The conical nozzle and cylindrical tube are moulded as one part from a plastics material, for example a high density polyethylene or polypropylene. The piston is then placed in position within the tube such that the space between the piston and nozzle is the predetermined volume of a single portion of ice-cream, for example 125ml. The container is filled with ice-cream through the nozzle and then frozen. The ice-cream is of the normal "soft scoop" type. Once filled, the first end 2 of the container is sealed with a removable foil cover that adheres to the end face 5 of the tube, protecting the ice-cream from contamination. Alternatively, the first end 2 may be sealed with a removable cap.

The ice-cream is expelled from the container through the nozzle 6 by driving the piston 9 along the cylindrical tube towards the nozzle 6. The shape of the piston ensures that substantially all the ice-cream within the container is expelled. The container is rigid and does not collapse during the expulsion of the ice-cream. Because the tube is cylindrical, the force required to drive the piston is substantially uniform.

The dispenser 1 is shown in figures 1 to 5. Figures 1 to 3 show the dispenser in a folded configuration, figure 4 shows the dispenser being unfolded and figure 5 shows the dispenser ready for use, with a container of ice-cream in position for dispensing. The dispenser includes a back plate 16, a support plate 18, and a handle 20 and a plunger 22.

The back plate 16 has a lower portion 24 which is substantially rectangular in shape, joined to an upper neck portion 26, with rounded shoulders 28. Towards the top of the upper neck portion is a small connector piece 30 which extends forwards. There are two keyhole-shaped apertures 32 for suspension of the dispenser on suitably positioned screws, located
5 near the top of the lower portion of the back plate. Extending forwards at the base of the back plate is a small shelf 34. The central portion of the shelf 34 is indented to accommodate the handle 20 when the dispenser 1 is in the folded configuration. An arch shaped aperture 36 is located within the lower portion of the back plate, such that the base of the aperture is in line with the top of the shelf 34.

10 The base of the support plate 18 is pivotably connected to the back plate 16 by means of a pivot pin 38, enabling the support plate 18 to fold downward when the dispenser is setup for use. The support plate is shaped such that in the folded configuration it fits within the arch-shaped aperture 36 in the back plate 16. The support plate includes an open circular aperture 40 at its free end. Around the edge of the aperture there is a C-shaped support
15 surface 42.

When the support plate is folded downward it engages with the shelf 34. The shelf maintains the support plate in a horizontal position for engagement with the container. When in the position for use, the circular aperture 40 in the support plate is co-axial with the axis of the plunger 22. The C-shaped support surface engages the end face 7 of the
20 container such that the container is supported in an upright position with the axis of the container substantially in line with the axis of the plunger.

The handle 20 is pivotably connected by means of a pivot pin 44 to the connector piece 30 located near the top of the back plate 16. In the folded configuration the handle lies flat against the middle of the back plate 16. The handle includes first and second sections 46
25 and 48. The first section 46 is pivotably connected at one end to the back plate by means of a pivot pin 44. The first and second sections 46, 48 are pivotably connected together by means of a second pivot pin 50, enabling the handle to be folded for storage and extended when the dispenser is unfolded for use. Within the first section 46 there is a long narrow substantially rectangular aperture 52, with rounded ends, which is positioned towards the
30 second pivot pin 50. A lip 54 extends on the underside of the first section 46 at the end

closest to the second pivot pin 50. The lip 54 serves as a stop surface to maintain the first and second sections in line when the handle is extended for use.

The plunger 22 is long, narrow and substantially rectangular in shape, with first and second ends, 56 and 58 respectively. The first end 56 of the plunger 22 is pivoted to the first section of the handle 46 near the top of the rectangular aperture 52 by means of a pivot pin 60. The second end 58 has a rounded surface for engagement with the piston 9 of the container 1. The plunger 22 is shorter and slightly narrower than the aperture 52, so that when the dispenser is in the folded configuration the plunger fits within aperture of the first section, lying flat against the back plate. When the dispenser is unfolded the plunger 22 is pivoted downward such that when the dispenser is in the position for use, the plunger is in a substantially vertical position.

The dispenser can be made of stainless steel, aluminium, a durable plastics material, or any other suitable material.

The method of using the dispensing system will now be described.

15 When an ice-cream is desired, the dispenser 1 which may for example be conveniently stored in a drawer, is mounted on a wall or suitable stand. The dispenser can be mounted on a wall either by means of suitably positioned screws or other suspension means. Alternatively, the dispenser may be permanently mounted on the wall so that it is in position for use whenever required.

20 The operator of the dispenser unfolds the dispenser by extending the handle 20, and folding the support plate 18 downwards so that it rests on the shelf 34 of the backing plate 16.

A container 2 of the desired flavour of ice-cream is chosen from the variety of flavours on offer in the freezer. The protective foil cover or cap is removed and the container is placed vertically in position on the support base of the dispenser. The operator lifts the handle up and pivots the plunger 22 downwards to engage the piston 9 of the container. The wafer cornet or bowl is held below the container. The operator pulls the handle 20 down, driving the plunger 22 down and thereby driving the piston 9 along the cylinder and forcing the ice-cream out of the nozzle 6. Expulsion of the ice-cream can be carefully controlled by

adjusting the pressure exerted on the handle, enabling the desired presentation to be obtained.

When the operation is complete, the container 2 is removed and disposed of. The operation can be repeated as many times as necessary before the dispenser is neatly stowed away
5 again until the next time.

As will be apparent, the dispenser is very simple to use. The dispenser is easy to operate manually since only a relatively small amount of force is required to dispense the ice-cream from the container. The design of the dispenser is such that it is small, compact, durable and easy to assemble and operate. The container is simply placed in the support base of the
10 dispenser, the plunger brought into engagement with the piston of the container, and then the handle is pulled down. After dispensing the ice-cream, the container is easily removed and disposed of appropriately.

The container is a tube, resulting in efficient packing of the containers within a box, thereby taking up minimum space within a freezer. The aperture of the nozzle is large enough to
15 enable ice-cream containing particulates to be dispensed just as easily as smooth ice-cream. Thus this dispensing system enables different types and flavours of ice-cream to be served attractively, quickly and easily. The system also reduces possible hygiene problems associated with the scoop method of supplying ice-cream since the ice-cream is sealed until required, and the dispenser does not come into contact with the ice-cream.

20 Various modifications of the dispensing system are envisaged, for example the handle may be telescopically extendible, or a fixed length handle may be provided. The dispenser may also be manufactured from metal, for example aluminium or stainless steel, or from plastics materials, for example by injection moulding.

CLAIMS :

1. A dispensing device for dispensing frozen dessert from pre-filled containers of frozen dessert, each said container including a tubular housing having a nozzle at a first end thereof and a piston located for sliding movement within said tubular housing to extrude frozen dessert within said container through the nozzle, the dispensing device including a frame member, a support means for supporting a pre-filled container in position for dispensing the frozen dessert, said support means being attached to said frame member by a first pivot means, a plunger for engaging the piston of a container supported on said support means, and a drive lever for driving said plunger to dispense frozen dessert from the container, said plunger being attached to said drive lever by a second pivot means, said drive lever being attached to said frame member by a third pivot means, the arrangement being such that the dispensing device may be unfolded for use or folded substantially flat for storage.
2. A dispensing device according to claim 1, wherein the support member is arranged to fold into an aperture in the frame member.
3. A dispensing device according to claim 1 or claim 2, wherein the support member includes an arcuate support surface to engage the first end of the container.
4. A dispensing device according to any one of the preceding claims, wherein the drive lever is arranged to fold substantially flat against the frame member.
5. A dispensing device according to any one of the preceding claims, wherein the plunger is arranged to fold into an aperture in the drive lever.
6. A dispensing device according to any one of the preceding claims, wherein the drive lever has two parts pivoted together, the arrangement being such that the drive lever may be unfolded for use or folded substantially flat for storage.
7. A dispensing device according to any one of the preceding claims, wherein the frame member includes mounting means for mounting the device to a support.

8. A frozen dessert dispensing system, said dispensing system including a dispensing device according to any one of the preceding claims and a plurality of containers, each container containing an individual portion of frozen dessert, said container including a substantially cylindrical tube having first and second ends, a nozzle means towards said first end, a piston means located between said nozzle and said second end, said piston means being adapted for sliding movement along the tube between said nozzle means and said nozzle means.
9. A dispensing system according to claim 8, wherein the individual portion of frozen dessert lies in the range 100ml-250ml, and preferably in the range 125ml-200ml.
10. A dispensing system according to claim 8 or claim 9, wherein the container is sealed with a removable cover.
11. A dispensing system according to any one of claims 8 to 10, wherein the container is substantially rigid.
12. A dispensing system according to claim 11, wherein the container is made of high density polyethylene or polypropylene.
13. A method of dispensing frozen dessert from a container containing an individual portion of frozen dessert using a dispensing device according to any one of claims 1 to 8, said container including a substantially cylindrical tube having first and second ends, a nozzle means towards said first end, a piston means located between said nozzle and said second end, said piston means being adapted for sliding movement along the tube, said individual portion of frozen dessert being contained within the cylindrical tube between said nozzle means and said piston means, the method including unfolding the dispensing device for use, placing a container of frozen dessert on said support means, placing the plunger in engagement in engagement with the piston of the container, and operating said drive lever to actuate said plunger, such that it drives said piston along the tube, and dispenses the frozen dessert through said nozzle into a serving container.

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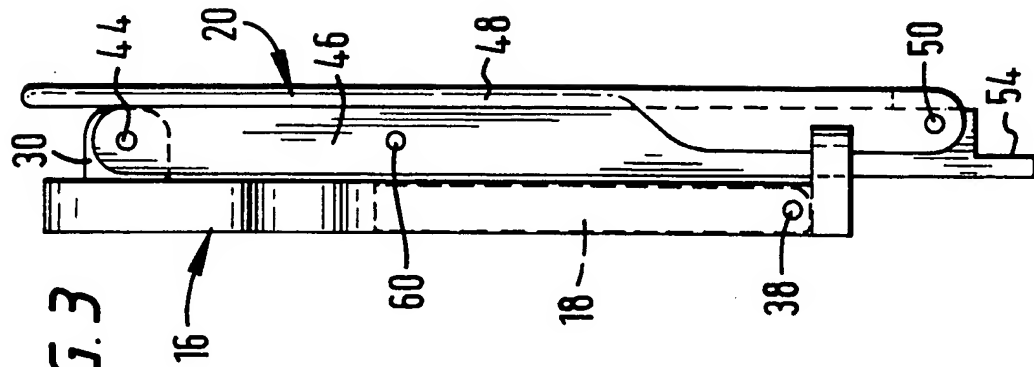


FIG. 3

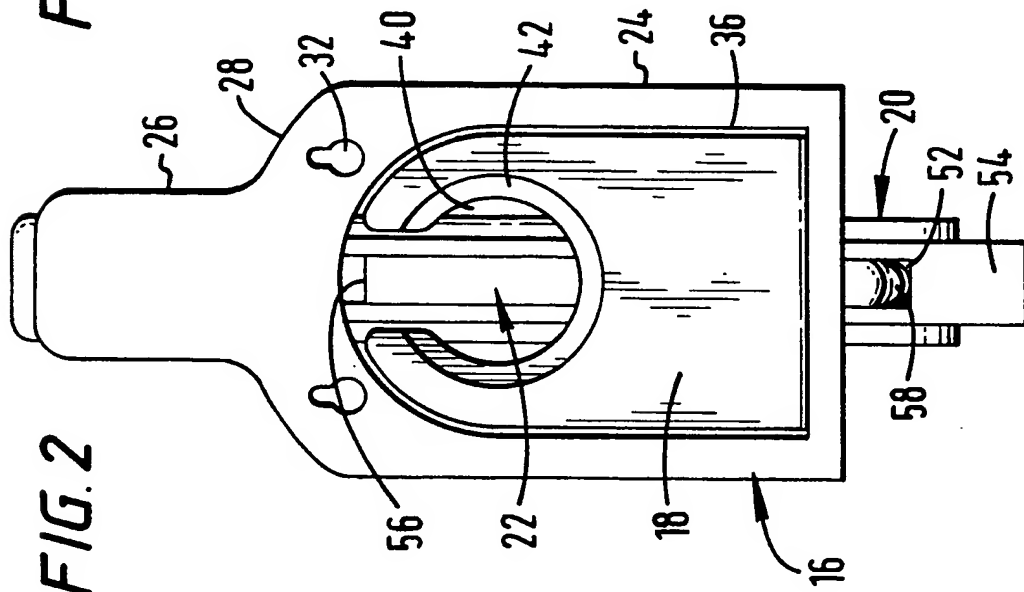


FIG. 2

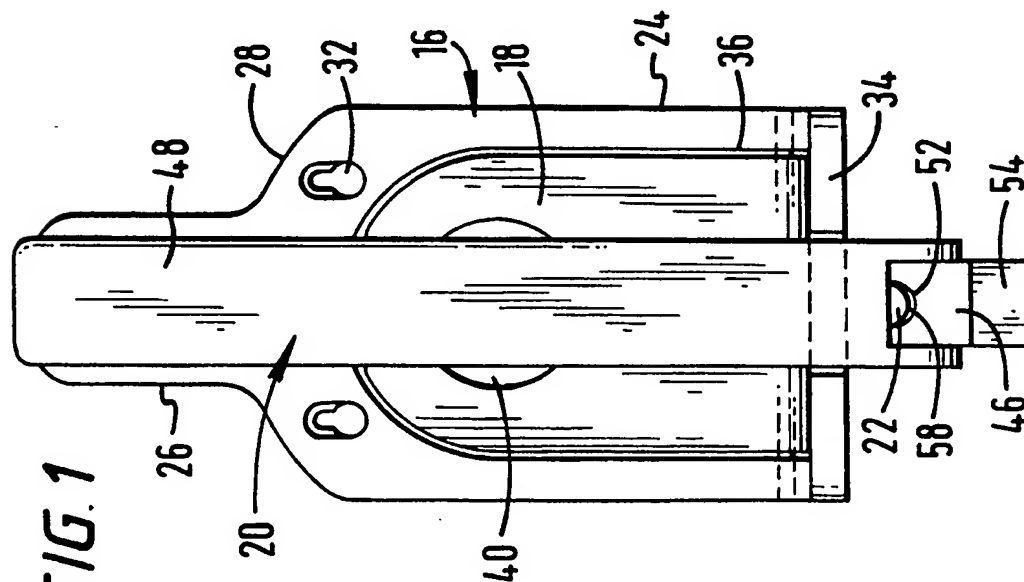
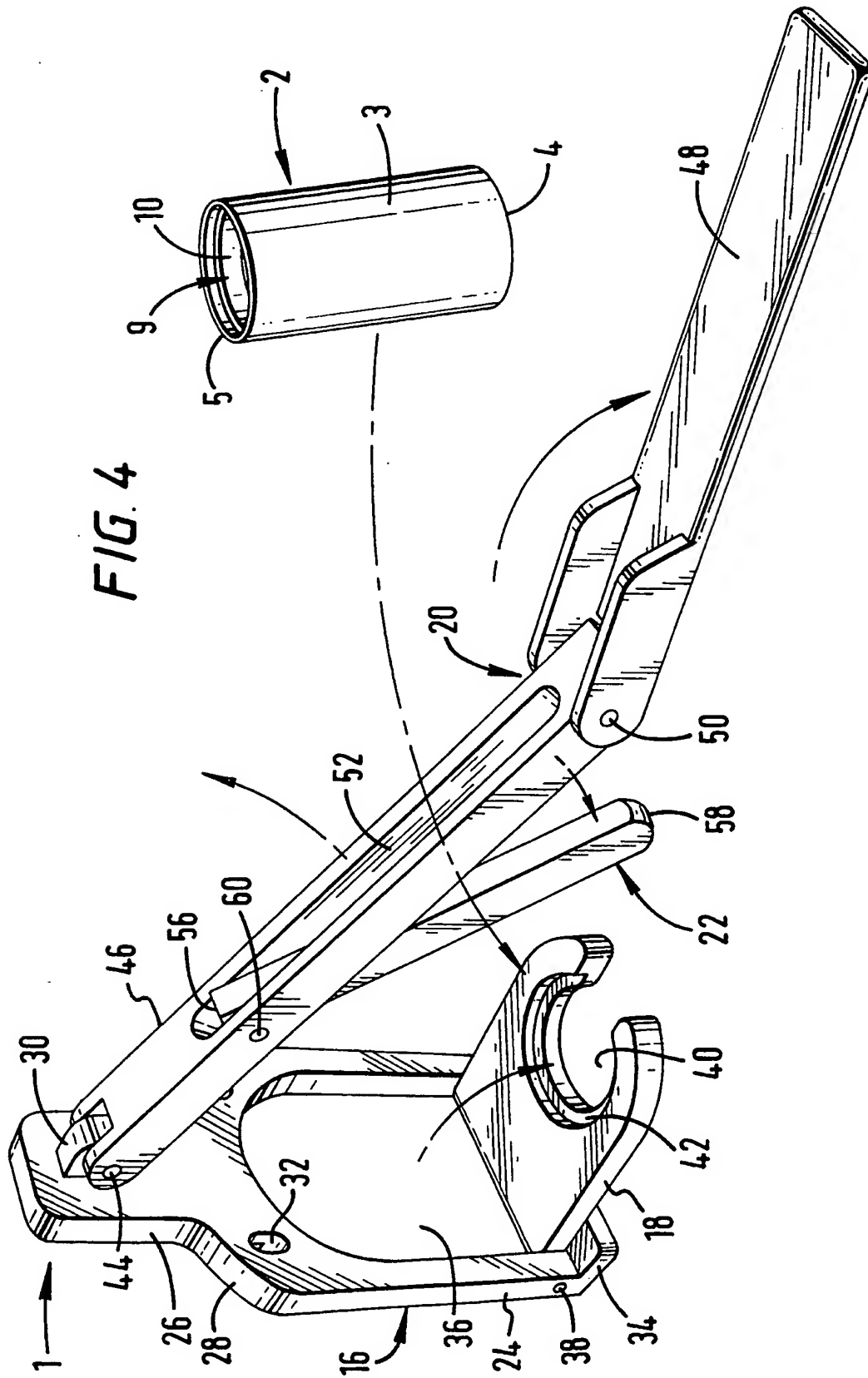


FIG. 1

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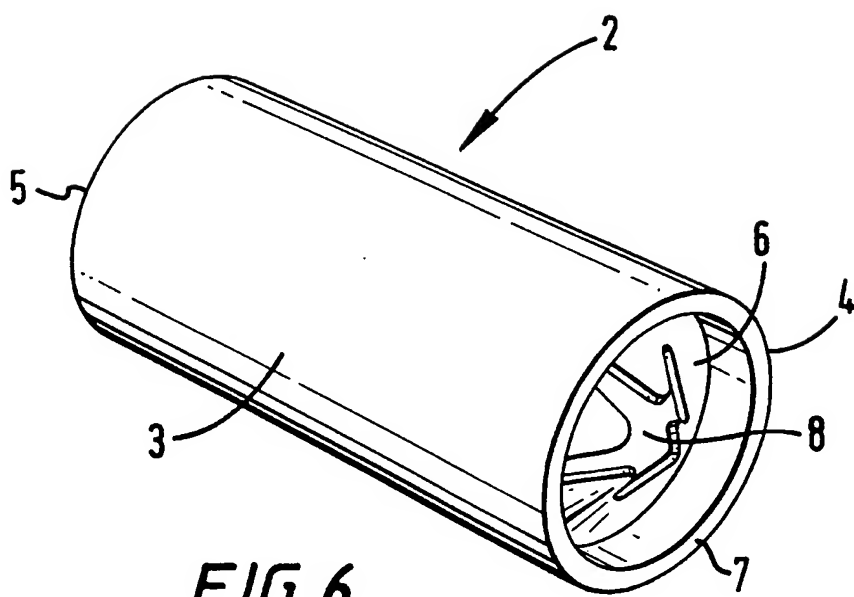


FIG. 6

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 99/03215

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A23G9/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A23G B65D B67D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 01224 A (MCGILL TECHNOLOGY LTD) 18 January 1996 (1996-01-18) page 6, paragraph 3; claims 1-3,15,16,27; figures 1,6,8,13	1,3, 6-11,13
A	US 5 820 892 A (LAUER ET AL.) 13 October 1998 (1998-10-13) claim 1; figure 1	1,8,13
A	WO 94 13154 A (UNICE INTERNATIONAL LTD.) 23 June 1994 (1994-06-23) cited in the application claims 1,3,14-16,19; figures 11,16	1,6-8, 10-13
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

11 January 2000

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LEPRETRE, F

INTERNATIONAL SEARCH REPORT

Internat'l Application No
PCT/GB 99/03215

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 020 698 A (CROSSLEY) 4 June 1991 (1991-06-04) column 1, line 26 - line 43 column 5, line 8 - line 15; figure 1 column 7, line 43 - line 47	1,3,6-8, 10-13
A	US 2 218 598 A (BROWN) 22 October 1940 (1940-10-22) claim 1; figure 1	1,8,13

INTERNATIONAL SEARCH REPORT

Information on patent family members

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